

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/04/12  
Date Received: 09/27/12  
Project: M09566, F&BI 209421  
Date Extracted: 09/28/12  
Date Analyzed: 09/28/12

RESULTS FROM THE ANALYSIS OF AQUEOUS SAMPLES  
FOR SPECIFIC GRAVITY  
@ 15.56 °C

Sample ID

Laboratory ID

Specific Gravity

M09566A Lg Tank  
209421-01

1.15

M09566B Sm Tank  
209421-02

1.13

*Note: The third significant digit is an estimate*

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/04/12  
Date Received: 09/27/12  
Project: M09566, F&BI 209421  
Date Extracted: NA  
Date Analyzed: 10/01/12

RESULTS FROM THE ANALYSIS OF AQUEOUS SAMPLES  
FOR PERCENT ACID

<u>Sample ID</u> Laboratory ID	<u>Percent Acid</u>
M09566A Lg Tank 209421-01	10
M09566B Sm Tank 209421-02	8.9

**FRIEDMAN & BRUYA, INC.**

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Date of Report: 10/04/12

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**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF AQUEOUS SAMPLES  
FOR SPECIFIC GRAVITY  
@ 15.56 °C**

Laboratory Code: 209421-01 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Specific Gravity	1.15	1.15	0	0-2

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**ENVIRONMENTAL CHEMISTS**

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**QUALITY ASSURANCE RESULTS  
FROM THE ANALYSIS OF AQUEOUS SAMPLES  
FOR PERCENT ACID**

Laboratory Code: 209421-01 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Percent Acid	10	9.9	1	0-20

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 - More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr - The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.



**AQUATIC RESEARCH INCORPORATED**  
**LABORATORY & CONSULTING SERVICES**  
3927 AURORA AVENUE NORTH, SEATTLE, WA 98103  
PHONE: (206) 632-2715 FAX: (206) 632-2417

<b>CASE FILE NUMBER:</b>	<b>FBI010-56</b>	<b>PAGE 1</b>
<b>REPORT DATE:</b>	<b>10/03/12</b>	
<b>DATE SAMPLED:</b>	<b>09/27/12</b>	<b>DATE RECEIVED: 09/28/12</b>
<b>FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER</b>		
<b>SAMPLES FROM FRIEDMAN &amp; BRUYA, INC. / PROJECT NO. 209421</b>		

**CASE NARRATIVE**

Two water samples were received by the laboratory in good condition and analyzed according to the chain of custody. No difficulties were encountered in the preparation or analysis of these samples. Sample data follows while QA/QC data is contained on the subsequent pages.

**SAMPLE DATA**

AMMONIA	
SAMPLE ID (mg/L)	
MO9566A LG TANK	195
MO9566B SM TANK	606



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CASE FILE NUMBER: FBI010-56 PAGE 3  
REPORT DATE: 10/03/12  
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FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER  
SAMPLES FROM FRIEDMAN & BRUYA, INC. / PROJECT NO. 209421

**QA/QC DATA**

QC PARAMETER	AMMONIA (mg/L)
METHOD	SM184500NH3H
DATE ANALYZED	10/03/12
DETECTION LIMIT	0.010
DUPLICATE	
SAMPLE ID	BATCH
ORIGINAL	<0.010
DUPLICATE	<0.010
RPD	NC
SPIKE SAMPLE	
SAMPLE ID	BATCH
ORIGINAL	<0.010
SPIKED SAMPLE	0.213
SPIKE ADDED	0.200
% RECOVERY	106.52%
QC CHECK	
FOUND	0.317
TRUE	0.324
% RECOVERY	97.77%
BLANK	<0.010

RPD = RELATIVE PERCENT DIFFERENCE.

NA = NOT APPLICABLE OR NOT AVAILABLE.

NC = NOT CALCULABLE DUE TO ONE OR MORE VALUES BEING BELOW THE DETECTION LIMIT.

OR = RECOVERY NOT CALCULABLE DUE TO SPIKE SAMPLE OUT OF RANGE OR SPIKE TOO LOW RELATIVE TO SAMPLE CONCENTRATION.

SUBMITTED BY:

*Damien Gadomski*

Damien Gadomski  
Project Manager

### SUBCONTRACT SAMPLE CHAIN OF CUSTODY

FB1010.56

**Send Report To Michael Erdahl**

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone #. (206) 285-8282 Fax #. (206) 283-5044

**SUBCONTRACTOR**

Ag. Research

PROJECT NAME/NO.

209421

**PO #**

B-909

REMARKS

### Please Email Results

Page # 1 of 1

## TURNAROUND TIME

Standard (2 Weeks)

BRUSH 10/3/11

Rush charges authorized by:

## SAMPLE DISPOSAL

☐ **Dispose after 30 days**

☐ Return samples



☐ Will call with instructions[illegible]

**Friedman & Bruya, Inc.**  
3012 16th Avenue West.

Seattle, WA 98119-2029

**Ph. (206) 285-8282**

**Fax (206) 283-5044**

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: 	Michael Erdahl	Friedman & Bruya	9/25/12	9:30am
Received by: 	S. H. NELSON	RIKE	9/28/12	1:00
Relinquished by:				
Received by:				



**SAMPLE CHAIN OF CUSTODY** ME 09/27/12 ATG

PROJECT NAME/NO.

2.

## REMARKS

☐ Standard (2 Weeks)  
☐ Rush  
Rush charges indicated by  
asterisk.

- ☐ Delays due to delays
- ☐ Material samples
- ☐ With and with instructions

Samples received at 25 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.  
Yelena Aravkina, M.S.  
Bradley T. Benson, B.S.  
Kurt Johnson, B.S.

3012 16th Avenue West  
Seattle, WA 98119-2029  
TEL: (206) 285-8282  
e-mail: fbi@isomedia.com

October 4, 2012

Gerald Thompson, Project Manager  
Alaskan Copper Works  
628 South Hanford  
Seattle, WA 98134

Dear Mr. Thompson:

Included are the results from the testing of material submitted on September 27, 2012 from the M09566, F&BI 209421 project. There are 5 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl  
Project Manager

Enclosures  
ACU1004R.DOC